

### **Abstract**

Billions of dollars are being spent in the development and deployment of technologies for monitoring environmental biological and chemical contaminants to support early detection and reaction to potential biological warfare and terrorism. To date, little commercial value has been seen in these technologies. However, direct application of these technologies for monitoring, in real time, the growth environment found in high density farming applications (i.e. poultry, pigs, veal, etc.) offers the potential for considerable improvement in yields, reduced use of antibiotics and other prophylactic pharmaceuticals and reduced potential for outbreaks of drug resistant disease.